Item #28

SEMINOLE COUNTY GOVERNMENT
AGENDA MEMORANDUM

SUBJECT: First Amendment to the Agreement Between the St. Johns River Water Management District (SJRWMD) and Seminole County for the Little Wekiva River Watershed Management Plan – **Phase II**

DEPARTMENT: Public Works **DIVISION:** Roads - Stormwater

AUTHORIZED BY: W. Gary Johnson, P.E. **CONTACT:** Mark E. Flomerfelt, P.E. **EXT.** 5709

Agenda Date 8/10/04 **Regular** ☐ **Consent** ☒ **Work Session** ☐ **Briefing** ☐
Public Hearing – 1:30 ☐ **Public Hearing – 7:00** ☐

MOTION/RECOMMENDATION: Approve and authorize Chairman to execute the First Amendment to the Agreement between the SJRWMD and Seminole County for the Little Wekiva River Watershed Management Plan- **Phase II**.
District 3: Commissioner Dick Van der Weide; and District 5: Commissioner Daryl McLain (Mark Flomerfelt)

BACKGROUND:
The first phase of the *Little Wekiva River Watershed Management Plan* entailed a multi-jurisdictional effort to specifically address erosion and sedimentation in the river. Most of the outlined erosion and sediment control projects have been successfully constructed. Erosion and sediment control projects within Seminole County included Weathersfield Avenue, San Sebastian (or Seminole County Area 3), Horse Lovers Lane, and Northwestern Avenue. Implementation of these projects was pursuant to specific appropriations authorized by the Florida Legislature.

The SJRWMD, in a cooperative effort with Orange and Seminole counties, has been working on the second phase of the Little Wekiva River Watershed Management Plan. This second phase of the watershed management plan concentrates on comprehensive water quality and flood attenuation improvements within the Little Wekiva River Basin. On December 3, 2001 Seminole County entered into an agreement with the SJRWMD to commit up to $125,000 of local funds for this second phase of the watershed management plan.

The enclosed agreement amendment would commit an additional $22,000 to the Little Wekiva Watershed Management Plan – PHASE II for a total contribution of $147,000. This additional funding will allow for more detailed evaluations of pollutant loads in the water quality portion of the management plan.

Funding for this project is currently programmed in the Roads - Stormwater Division's FY03/04 budget and was anticipated as a contribution to the multi-jurisdictional efforts in the management of the Little Wekiva River Basin.

Attachment

Reviewed by:
Co Atty:
DFS:
Other:
DCM:
CM:

File No. CPWS01

FIRST AMENDMENT TO THE AGREEMENT BETWEEN THE ST. JOHNS RIVER WATER MANAGEMENT DISTRICT AND SEMINOLE COUNTY FOR THE LITTLE WEKIVA RIVER WATERSHED MANAGEMENT PLAN - PHASE II

THIS AMENDMENT is entered into this _____ day of _____, 2004, by and between the GOVERNING BOARD of the ST. JOHNS RIVER WATER MANAGEMENT DISTRICT ("the District"), whose mailing address is 4049 Reid Street, Palatka, Florida 32177, and SEMINOLE COUNTY ("County"), whose address is 520 West Lake Mary Boulevard, Suite #200, Sanford, Florida 32773.

WHEREAS, the District and County entered into Agreement SE649XA (new Fiscal Year revenue contract number SF604XA) on December 3, 2001, to provide funding for a regional master watershed plan for the Little Wekiva River subbasin; and

WHEREAS, the District and County desire to modify the Agreement.

NOW, THEREFORE, in consideration of the mutual covenants contained herein and for other good and valuable consideration, the District and County hereby agree to the following amendments:

1. **ARTICLE I – SCOPE OF WORK:** Delete existing paragraph and replace with the following revised paragraph:

   "The District, through its consultant, will be responsible to collect the available information, identify the problems, and recommend alternatives to address the degraded water quality, increased flow rates, and excessive nuisance vegetation in the basin, as stated in Exhibit "A-1," Revised Scope of Work."

2. **ARTICLE II – SCHEDULE OF WORK AND EFFECTIVE DATE:** Paragraph B shall be deleted and replaced with the following revised Paragraph B:

   "B. All work will be completed by the District's consultant by September 30, 2005, unless the date is extended by mutual agreement of the parties hereto."

3. **ARTICLE VI – FUNDING AND PAYMENT:** Paragraphs A and B shall be deleted and replaced with the following revised Paragraphs A and B:

   "A. Through this Agreement, County agrees to provide an additional amount not to exceed Twenty-two Thousand and No/100 Dollars ($22,000) to the District, increasing the original Contract amount of $125,000 to a total not to exceed amount of $147,000."

   "B. **Invoicing Procedure:** All invoices shall reference contract number SF604XA and shall be submitted to Seminole County, 520 West Lake Mary Boulevard, Suite #200, Sanford, Florida 32773. The District will invoice County as follows:

Invoice #	Submittal Date	Amount
1	August 31, 2001	$125,000
2	August 31, 2004	$ 22,000"

The District and County agree that all other terms and conditions of the original Agreement are hereby ratified and continue in full force and effect.

IN WITNESS WHEREOF, the parties hereto have duly executed this Amendment on the date set forth above.

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT

By: _____
Kirby B. Green III, Executive Director

APPROVED BY THE OFFICE OF GENERAL COUNSEL

_____
Stanley J. Niego, Sr. Assistant General Counsel

SEMINOLE COUNTY

By: _____

_____
Typed Name and Title

Attest: _____

_____
Typed Name and Title

Accepted By:

ATTEST:

BOARD OF COUNTY COMMISSIONERS
SEMINOLE COUNTY, FLORIDA

By: _____
Daryl McLain, Chairman
Board of County Commissioners

Date: _____

MARYANNE MORSE
Clerk to the Board of County
Commissioners of Seminole County, Florida

For the use and reliance of
Seminole County only.
Approved as to form and legal
sufficiency.

_____
County Attorney

7/23/04
Date

As authorized for execution by the Board of
County Commissioners at their
_____, 2004 regular meeting

First Amendment to the Agreement Between the St. Johns River Water Management District and Seminole County for the Little Wekiva River Watershed Management Plan – Phase II

EXHIBIT "A-1" – REVISED SCOPE OF WORK
LITTLE WEKIVA RIVER WATERSHED MANAGEMENT PLAN – PHASE II
SEMINOLE COUNTY

I. BACKGROUND

The Little Wekiva River receives high flows of untreated stormwater from an urbanized area. A master plan is being planned to gather the available information, identify the problems, and recommend alternatives to address the degraded water quality and increased flow rates in the basin. The master plan is a cooperative effort between County, the District, the cities of Altamonte Springs and Orlando, and Orange County.

II. INTRODUCTION

The Little Wekiva River master plan will be referred to as the Little Wekiva River Watershed Management Plan – Phase II. The master plan will be completed in the following sequence:

Part A. Data Compilation and Mapping
Part B. Engineering Analysis and establishment of priorities
Part C. Alternative Analysis

County will provide advanced payment to the District for the work. The District is presently and will continue to develop a work order with its annual consultant, Camp, Dresser & McKee (CDM), to accomplish the work. The scope of work developed by CDM for this project is attached (Attachment 1). Part A is completed and approved and Part B is underway. Input from the Little Wekiva River Technical Working Group and the public will be sought throughout the planning effort and for the issue prioritization process. Primary issues of concern with this master plan will include water quality, water quantity, and ecosystems. Funds in the amount of $125,000 provided by County have been used to cover Parts A and B. The funds under this Amendment will cover Part C and are subject to availability of funds and approval of the County's Board of Commissioners.

III. TASKS

Complete:

Part A. Data compilation included gathering of available data concerning water quality, water quantity, and ecosystem issues. Report finalized and approved in May 2003.

Current:

Part B. Engineering Analysis and establishment of priorities will include hydraulic, hydrologic, and water quality modeling of the system. Completion date: September 2004.

Future Tasks of Phase II

Part C. Alternative Analysis will include the identification, preliminary cost analysis, and evaluation of alternatives to address the issues and priorities identified in Parts A and B. Estimated completion date will be September 2005.

Phase III:

Phase III Implementation will include the design and construction of the alternatives as they are prioritized in early phases and through current information that may be available. Legislative or alternate funding will be sought to accomplish Phase III – construction of projects.

ATTACHMENT 1
ST. JOHNS RIVER WATER MANAGEMENT DISTRICT
SCOPE OF SERVICES

CONSULTING ENGINEERING SERVICES FOR PHASE 2 OF THE LITTLE WEKIVA RIVER WATERSHEDMANAGEMENT PLAN

CAMP DRESSER & McKEE INC.

FEBRUARY 2002

INTRODUCTION

The St. Johns River Water Management District (SJRWMD) in cooperation with Orange County, Seminole County, the City of Orlando, the City of Maitland, and the City of Altamonte Springs (PARTICIPANTS) has hired Camp Dresser & McKee Inc. referred to below as CONSULTANT to complete a Watershed Management Plan (WMP) for the Little Wekiva River Basin. The Little Wekiva River Basin has a tributary area of approximately 42 square miles and includes portions of Orange County, Seminole County, the City of Altamonte Springs, and the City of Orlando (See Figure 1). The purpose of this Scope of Services is to specify the required services and associated fees of the CONSULTANT to conduct the WMP. To the extent practicable, the CONSULTANT will build upon stormwater modeling and planning efforts previously completed for the basin. Specifically, the CONSULTANT will build upon the stormwater model and analysis completed for the Recommended Erosion and Sedimentation Countermeasures – Little Wekiva River Watershed Management Plan (1998 Study) and the stormwater master planning efforts completed as part of the Seminole County Little Wekiva River Basin Drainage Inventory Engineering Study (1995 Study). The WMP will address both water quantity and water quality issues as defined by this scope of services.

This study will be undertaken in three (3) parts:

Part I	-	Inventory Update of existing stormwater management systems.
Part II	-	Engineering analysis of the existing stormwater system and identification of problem areas.
Part III	-	Engineering analysis to develop alternatives to alleviate flooding in problem areas and/or develop regional solutions.

Part I will address the system inventory update, accompanied by the review of existing available engineering plans and studies, from which the flow patterns and existing stormwater management structures will be updated. Also in this part, potential data gaps between existing data and data needed for modeling will be determined; and a scope of services to collect the additional needed data will be prepared. Wetlands and waterbodies within the study area will be identified using current St. Johns River Water Management District (SJRWMD) and US Army Corps of Engineers (USACOE) rule

criteria and mapped using aerial photo interpretation. The wetlands and waterbodies will be designated using the Florida Land Use Cover and Forms Classification System. Part II will provide the engineering analysis to determine the existing stormwater system capacity, demands, and deficiencies. Part III will provide engineering analysis to develop design alternatives to alleviate flooding in problem areas and improve water quality.

Presented below is the scope of services developed to complete these three parts of this project.

SCOPE OF SERVICES

The CONSULTANT will provide the following scope of work:

PART I: INVENTORY AND PROBLEM IDENTIFICATION

Part I, Task 1 Data Collection and Evaluation

Part I, Subtask 1.1 Data Collection and Evaluation - The SJRWMD and PARTICIPANTS will make available to the CONSULTANT all data previously gathered or developed for the Little Wekiva River Basin including:

a. All existing reports, as-built drawings and survey data in the study area.
b. Hydrologic meteorological records.
c. Existing and proposed drainage systems.
d. Most recent existing aerial photography (with and without contours) from Orange, & Seminole Counties, and the SJRWMD.
e. Documentation of past flooding complaints.
f. Documented finished floor elevations.
g. Present and projected land use within the study area including all DRIs, PUDs, EISs, major subdivision plats, and other large developments which has been approved by or approvals filed with the PARTICIPANTS.
h. Existing water quality data for lakes and major rivers.
i. Existing waterbodies and wetlands relative to water quality, quantity within the watersheds and mitigation potential.
j. Rules, regulations, ordinances, and laws (local, state, federal) pertinent to the study area.
k. Archeological resources.
l. National Wetlands Inventory Maps (NWI).
m. Florida Land Use Cover and Classification System Maps (FLUCCS).
n. Proposed wetland mitigation areas already approved by regulatory agencies, as of the effective date of the contract.

The SJRWMD and PARTICIPANTS will be responsible for supplying the CONSULTANT, in both digital and hardcopy formats (as available), any data developed or compiled for the Little Wekiva River Basin (i.e., as-built drawings, GIS data, aerial photography, etc.) as described above. The CONSULTANT will be responsible for contacting the SJRWMD and PARTICIPANTS to review available data, and evaluate these data for use in this study. The CONSULTANT will produce a Data Collection and

Evaluation Report Section that will summarize available data and data needs.

Part I, Subtask 1.2 Vegetation Subcommittee Coordination – The CONSULTANT will meet with the existing Vegetation Subcommittee for the Little Wekiva River to review and collect existing data and work completed by the committee to date. Data may include exotic pest plants by river segment, existing vegetation management plans and/or proposals, completed public information efforts, and any vegetation management funding sources identified by the subcommittee. These data will be summarized by the CONSULTANT in the Data Collection and Evaluation Report Section.

Part I, Task 2 System Inventory and Mapping

Part I, Subtask 2.1 Base Maps - The CONSULTANT will develop working hardcopy base maps of the basin using a map scale mutually agreed to by the CONSULTANT and the SJRWMD. The base maps will be developed from the existing Geographic Information System (GIS) coverage features provided by the Orange County, Seminole County, or the SJRWMD. The base map features may include parcel data, municipal boundaries, major roads (and names), aerial photography, and existing water and wetland coverage. The CONSULTANT will use ArcView Version 3.2a to develop the project base maps. For report figures, maps will be plotted at a scale that will fit either on an 8 ½ -inch by 11-inch sheet of paper or an 11-inch by 17-inch sheet of paper. Supplement base maps may also be printed out on a 24-inch by 36-inch drawing at a scale of approximately 1-inch equals 1,500 feet with match lines as needed. All mapping will be done using a coordinate system mutually agreed upon between the CONSULTANT and the PARTICIPATNS.

Part I, Subtask 2.2 Problem Identification – The CONSULTANT will attend one (1) meeting with Orange County staff, one (1) meeting with Seminole County staff, one (1) meeting with City of Orlando staff, one (1) meeting with City of Maitland staff, one (1) meeting with City of Altamonte Springs staff, and one (1) meeting with SJRWMD staff to discuss known problem areas and to document the nature of each problem (6 meetings). Problems will focus on serious flooding problems (flooding of homes/buildings or road flooding greater than 1 food deep). Problem areas identified during each meeting will be added to the project base map by the CONSULTANT and included in the Data Collection and Evaluation Report Section.

Part I, Subtask 2.3 Stormwater Model Schematic – The CONSULTANT will incorporate the stormwater model schematic developed for the 1998 Study and the stormwater model schematic for two tributaries to the Little Wekiva River being modeled by others at a higher level of detail (provided by Seminole County) into an overall base stormwater model schematic for this study. Additionally, the CONSULTANT will refine the stormwater model schematic (if needed) to address the problem areas identified in Subtask 2.2 as mutually agreed upon by the CONSULTANT and the SJRWMD. The updated model schematic will be used as a guide for the system inventory efforts defined in subsequent Subtasks. The model schematic will be added to the project base map.

Part I, Subtask 2.4 System Inventory -The CONSULTANT will develop a structure inventory map for the Little Wekiva River Basin based upon published data collected under Part I, Task 1 and information provided in the 1995 Study, the 1998 Study, and the stormwater structure inventory completed for the City of Altamonte Springs (as provided by the City of Altamonte Springs). Known structures will be hand drawn on the project base map by the CONSULTANT unless already in digital format and in a compatible coordinate system with the project base map. For each structure inventoried, the CONSULTANT will record the documented geometric information (diameter, length, invert elevations, material, top-of-road elevation) as available. The CONSULTANT has budgeted for **100** structures with an equivalent diameter greater than 36-inches to be added to the project base map. The stormwater model based upon Phase I (1998 Study) has 214 modeled conduits. If the inventory reaches **100** structures and is not complete, the CONSULTANT will provide the SJRWMD with a new scope of services and budget to complete the additional inventory for review and approval.

Part I, Subtask 2.5 Field Reconnaissance - Based on the updated inventory, the CONSULTANT will complete a field reconnaissance of the primary stormwater management system and identify observed structural changes or differences from the data inventoried under Subtasks 2.3 and 2.4. New or modified structures will be marked on copies of the COUNTY's existing aerials and added to the survey plan for the basin. The CONSULTANT shall also document observations related to scour, physical deficiencies, and other environmental problems. The CONSULTANT will take digital photographs of structures field inspected by the CONSULTANT. The CONSULTANT's field inspection shall extend upstream to the outfall structure of a given subdivision and not beyond. The CONSULTANT's field crews will carry a 1-page information notice describing the goals of the WMP. For budgeting purposes, a maximum of **100** primary system structures will be field inventoried. If the inventory reaches **100** structures and is not complete, the CONSULTANT will provide the SJRWMD with a scope of services and budget to complete the additional inventory for review and approval.

Part I, Subtask 2.6 Survey Plan - Based upon the results of Subtasks 2.3, 2.4 and 2.5, the CONSULTANT will prepare a recommended survey plan for stormwater structures, open channel cross sections, and finished floor elevations that will be included in the Part II - Engineering Analysis. The plan will identify the locations of the structures, channel cross-sections, and finished floor elevations to be surveyed, definition of information to be measured, and a listing of available benchmarks. The CONSULTANT has established a project survey budget of $20,000. If additional survey is needed beyond what can be accomplished for the $20,000 budget, the CONSULTANT will provide the SJRWMD with a scope of services and budget to complete the additional survey work for review and approval.

Part I, Subtask 2.7 Structure Mapping – The CONSULTANT will digitize stormwater structures inventoried under Task 2 using ArcView Version 3.2a. Structures will be digitized by the CONSULTANT from the working base maps using visual interpretation (approximate locations). For each structure inventoried, the CONSULTANT will add the basic structure geometry (dimensions, invert elevations, material) as table attribute

data within ArcView Version 3.2a. The CONSULTANT has budgeted for up to **200** structures to be mapped (100 from file review and 100 from field reconnaissance). If the inventory reaches **200** structures and is not complete, the CONSULTANT will provide the SJRWMD with a new scope of services and budget to complete the additional mapping for review and approval.

Part I, Task 3 Wetland Inventory

Part I, Subtask 3.1 Preliminary Wetland Screening - The CONSULTANT will update existing wetland map data by superimposing the hydric soils coverage, parcel coverage, and Florida Land Use Cover Classification System (FLUCCS) based wetlands coverage over the most recent aerial photographs of the Little Wekiva River Basin. Using these data, the wetland boundaries for the basin will be revised. Each wetland will be identified by wetland type on the project base map using the FLUCCS.

Part I, Subtask 3.2 Wetland Functional Assessment - Once the wetlands have been identified, the CONSULTANT will conceptually assess the functional rating for each wetland. The functional rating is based by the size, amount of disturbance, connectedness, and location in the landscape. The potential use of wetlands for restoration, rehydration, and/or stormwater flood storage and attenuation will be assessed and presented as part of the functional assessment. This Subtask includes four (4) 8-hour field visits by a two-person field crew.

Part I, Subtask 3.3 Habitat Assessment - The CONSULTANT will compile a list of known listed species that are located within the basin based upon published data available from the SJRWMD or the Florida Department of Environmental Protection. The Florida Natural Area Inventory (FNAI) will be contacted for this purpose. The CONSULTANT will develop a map showing the general location of listed species potentially within the basin.

Part I, Task 4 Water Quality

Part I, Subtask 4.1 Water Quality Data Review - The CONSULTANT will review published water quality data available for the basin as provided by the COUNTY and provide a written summary of the review as a report section. The CONSULTANT will add to the base map the general locations of where water quality sampling was performed as can be determined from the published data.

Part I, Task 5 Existing and Future Land Use

Part I, Subtask 5.1 Existing Land Use Data – The SJRWMD will provide the CONSULTANT with a digital copy of the current land use map used to develop the hydrologic parameters used in the 1998 study. The digital current land use map provided by the SJRWMD will be in a format compatible with ArcView Version 3.2a. Potential discrepancies noted by the CONSULTANT between the current land use map provided by the SJRWMD and existing aerial photographs of the basin and existing land use information provided by each PARTICIPANT will be documented in a letter to the

SJRWMD for review. The CONSULTANT will also identify any needed refinements to the aggregation of land use categories with respect to the water quality modeling effort described in Part II.

Part I, Subtask 5.2 Future Land Use Data - The CONSULTANT will use the available digital future land use maps available from each PARTICIPANT to develop a composite future land use map of the study area using ArcView Version 3.2a. Future land use maps that are only available in paper format or are not to a standard coordinate system will only be reviewed qualitatively by the CONSULTANT for consistency with future land use data available from Seminole County and Orange County in digital format. Large scale discrepancies (if any) will be noted by the CONSULTANT would be documented in a letter to the SJRWMD. If large-scale discrepancies are noted by the CONSULTANT, the CONSULTANT will use the land use category with the higher percent imperviousness value. Also, potential large-scale discrepancies noted by the CONSULTANT between the future land use map and the existing land use map (if any) will be documented in a letter to the SJRWMD. A maximum of 15 land use categories will be used for developing hydrologic parameters for this study.

Part I, Task 6 Report Development

Part I, Subtask 6.1 Report - Upon the completion of Part I, the CONSULTANT shall prepare and submit (10) copies of the Draft Inventory and Problem Definition Report for review and approval by the SJRWMD. Written comments provided by the SJRWMD on the draft report will be addressed in a manner mutually agreed upon by the SJRWMD and the CONSULTANT. It is expected that the SJRWMD will prepare a composite comment list based upon input from each PARTICIPANT. Upon final approval, the CONSULTANT shall submit ten (10) copies of the Final Inventory and Problem Definition Report, one (1) unbound original copy, and digital document files (Microsoft OFFICE PRO format) on a compact disk (CD).

Part I, Task 7 Meetings and Coordination

Part I, Subtask 7.1 Meetings and Coordination - The CONSULTANT will attend one (1) project kickoff meeting and four (4) monthly meetings with the SJRWMD to discuss the status and/or problems encountered during this work authorization. These meetings are in addition to the problem identification meetings that will be done individually with each PARTICIPANT. The SJRWMD will be responsible for coordination of the meetings with each PARTICIPANT. The CONSULTANT will provide summary meeting minutes for the SJRWMD's review.

PART I - DELIVERABLES

1. The CONSULTANT will provide the SJRWMD with seven (7) project map sets based upon the results of Subtasks 2.1, 2.2, 2.7, 3.1, 3.3, 5.1 and 5.2.

2. The CONSULTANT will submit seven (7) compact disks that include the associated ArcView Version 3.2a files of primary stormwater management systems inventoried under Subtask 2.4 and Subtask 2.5.

3. The CONSULTANT will prepare a scope of work for and additional surveying requirements mutually agreed upon by the CONSULTANT and the SJRWMD.

PART II: ENGINEERING ANALYSIS

Upon completion of Part I and written authorization by the SJRWMD, the CONSULTANT will develop and negotiate a revised scope and budget necessary to complete Part II of this project based upon the findings of Part I. After written approval by the SJRWMD, the CONSULTANT shall commence with Part II. The objective of this part will be to analyze the existing stormwater system, establish service levels, and determine system deficiencies using the ICPR Version 2.20 computer program.

Part II, Task 1 Hydrologic/Hydraulic Model Development

Part II, Subtask 1.1 Hydrologic Unit Delineation - The CONSULTANT will use the hydrologic units delineated for the 1998 Study. The SJRWMD will provide a digital copy of the existing hydrologic unit delineations in a format compatible with ArcView Version 3.2a. Based upon the updated model schematic developed under Part 1, Subtask 2.3, the CONSULTANT will modify/add up to 50 hydrologic units to account for areas to be modeled at a higher level of detail.

Part II, Subtask 1.2 Soils Data - The CONSULTANT will use the digital soils data available from the SJRWMD and from the 1998 Study to create a soils coverage for the Little Wekiva River Basin. The digital soil data available from the SJRWMD are based upon the U.S. Department of Agriculture Soil Conservation Service Soil Survey of Orange County, Florida. These data will be classified into their defined Hydrologic Soils Group (A, B, C, or D). Dual class soils will be assigned to the class that has the lowest infiltration potential (e.g., Hydrologic Soil Group A/D will be assigned to Hydrologic Soil Group D for modeling purposes). Also, unclassified soil types (e.g., urban lands) will be assigned to the Hydrologic Soil Group C for modeling purposes.

Part II, Subtask 1.3 Hydrologic Parameters – The CONSULTANT will use the hydrologic parameters developed in the 1998 Study to represent existing land use conditions. For modified hydrologic units, the CONSULTANT will estimate the Curve Number (CN) and time of concentration. For future land use conditions, the CONSULTANT will estimate a composite Curve Number (CN) using the information developed under Part I. Additionally, the CONSULTANT will revisit the time of concentration under future land use conditions for each hydrologic unit that has more than a 20 percent change in acres of each land use type. CN calculations will be based upon normal antecedent moisture conditions (AMCII). These data will be input to the hydrologic component of the ICPR Version 2.20 Stormwater Model.

Part II, Subtask 1.4 Hydraulic Model Development - The CONSULTANT update the hydraulic model of the system to include the new reaches to be modeled based upon the updated model schematic. The hydraulic elements added to the model will be based upon the Part 1 data collection effort and new survey provided by the SJRWMD based

upon the survey plan developed by the CONSULTANT. The SJRWMD will be responsible for providing the existing ICPR Version 2.20 model data sets to the CONSULTANT in digital format. The CONSULTANT will use the updated ICPR Version 2.20 stormwater model to identify existing hydraulic system deficiencies defined in Task 2. For the purposes of this Subtask, the model provided by the SJRWMD for use in this study is assumed to be numerically stable (stages and flows), calibrated, and verified as stated by the PARTICIPANTS. If the stormwater model is found not to be numerically stable, the SJRWMD will be responsible for correcting the model provided to the CONSULTANT in terms of numeric stability or amend this contract (scope and budget) to have the CONSULTANT correct the existing model to a level mutually agreed upon by the SJRWMD and the CONSULTANT. Additional model calibration and verification is considered additional services to this scope of services.

Part II, Task 2 Existing Condition Model Results

Part II, Subtask 2.1 Flooding Levels-of-Service (LOS) – For the primary stormwater management system reach elements included in the stormwater model, the CONSULTANT will assign the applicable design storm LOS criteria based upon its assigned function (i.e., bridge, roadway culvert, stormwater pond, etc.). The assigned design criteria will be based upon the following:

1. A 100-year/24-hour design storm LOS will be assigned to bridges with spans greater than 20-feet, and modeled stormwater structures intended to keep evacuation routes and emergency service buildings operational, and any structures needed to keep finished floor elevations from being flooded as identified by the SJRWMD and PARTICIPANTS.

2. A 50-year/24-hour design storm LOS will be assigned to modeled road culverts and bridges with spans less than 20-feet intended to keep operational evacuation routes and the emergency service buildings identified by the SJRWMD and PARTICIPANTS.

3. A 25-year/24-hour design storm LOS will be assigned to the primary stormwater management system and all retention/detention facilities included in the stormwater model that are not subject to the criteria listed above. This includes open channel segments.

4. A 10-year/24-hour design storm LOS will be assigned to all close pipe conveyance systems included in the stormwater model of the primary stormwater management system that are not subject to the criteria listed above.

These criteria will be used by the CONSULTANT to identify system deficiencies. However, the CONSULTANT will modify the types of structures assigned to each category if requested by each PARTICIPANT. The four design storm events listed will remain the same for consistency in the design storm analysis associated with this study.

Part II, Subtask 2.2 Design Storm Analysis – The CONSULTANT will use the ICPR Version 2.20 model of the Little Wekiva River Basin to simulate the mean annual, 10-, 25-, 50-, and 100-year/24-hour design storm events under existing land use and hydraulic conditions and under normal antecedent moisture conditions. The CONSULTANT will simulate these five storm events using both the SJRWMD and Orange County existing rainfall distributions unless directed otherwise by the SJRWMD. In addition, the CONSULTANT will simulate the 25-year/72-hour design storm events using the SJRWMD rainfall distribution and the 10-year/3-hour design storm event provided by the City of Altamonte Springs (a total of 12 storm event simulations). The CONSULTANT will tabulate the resulting peak stages and peak flows for the modeled system resulting from the 12 design storm event simulations. Based upon this table, the CONSULTANT will identify predicted serious flooding problems (flooding of homes/buildings or road flooding) based upon the LOS criteria previously defined in Subtask 2.1 and note weather the 24-hour duration or the 72-hour duration is the more critical duration to the problem area for the 25-year design storm event. Identified problems will be added to the problem area map. These problems will be classified as existing system deficiencies.

Part II, Subtask 3 Mapping

Part II, Subtask 3.1 Floodplain Mapping - The CONSULTANT will delineate the 100-year floodplain based upon the peak stages generated from Part II, Subtask 2 for one duration as mutually agreed upon by the SJRWMD and PARTICIPANTS. The CONSULTANT will use available topographic maps provided by the SJRWMD to delineate the 100-year floodplain. If sufficient topographic data are not available, the SJRWMD will field locate the 100-year floodplain by survey. The 100-year floodplain will then be digitized by the CONSULTANT and converted into an ArcView Version 3.2a coverage that will be an overlay to the project base map developed under Part I.

Part II, Task 4 Future Condition Model Results

Part II, Subtask 4.1 Design Storm Analysis - The CONSULTANT will simulate the mean annual, 10-, 25-, 50-, and 100-year/24-hour design storm events using the ICPR Version 2.20 model of the Little Wekiva River Basin under future (build out) land use and existing hydraulic conditions and normal antecedent moisture conditions. The CONSULTANT will simulate these five storm events using both the SJRWMD and Orange County existing rainfall distributions unless directed otherwise by the SJRWMD. In addition, the CONSULTANT will simulate the 25-year/72-hour design storm events using the SJRWMD rainfall distribution and the 10-year/3-hour design storm event provided by the City of Altamonte Springs (a total of 12 storm event simulations). The CONSULTANT will tabulate the resulting peak stages and peak flows for the modeled system resulting from the 12 design storm event simulations. Based upon this table, the CONSULTANT will identify predicted serious flooding problems (flooding of homes/buildings or road flooding) based upon the LOS criteria previously defined in Subtask 2.1 and note weather the 24-hour duration or the 72-hour duration is the more critical duration to the problem area for the 25-year design storm event. Identified problems will be added to the problem area map. These problems will be classified as

future deficiencies. Differences between existing and future deficiencies will be used to guide the phasing of recommended capital improvement projects.

Part II, Subtask 4.2 Pollutant Load Targets and Analysis - The CONSULTANT will use the CDM Watershed Management Model (WMM) to evaluate relative annual and seasonal (wet and dry) stormwater-related pollutant loads generated within the Little Wekiva River Basin. WMM will be used to conceptually evaluate and screen the changes due to changes in land uses and existing and potential future Best Management Practices (BMPs). The evaluation of re-suspended pollutant loads has not been included in this subtask. This subtask will accomplished the following:

1. The CONSULTANT will conduct one (1) workshop with Orange County staff, one (1) workshop with Seminole County staff, (1) workshop with City of Orlando staff, one (1) workshop with City of Maitland staff, and one (1) workshop with City of Altamonte Springs staff (a total of 5 workshops) to develop basin wide estimates of existing regional BMPs including type, location, and approximate tributary area. This will be accomplished by hand-marking subdivisions and similar regionally developed areas served by existing BMPs on existing digital aerial photographs provided by the SJRWMD. Once regional BMPs have been identified, the CONSULTANT will digitize the tributary area served by the regional BMPs using ArcView Version 3.2a and estimate land use types served (based upon Part I, Task 5). The CONSULTANT will tabulate the results.

2. Subdivisions not served by existing BMPs (see 1 above) will be field investigated by the CONSULTANT to identify the potential for BMP retrofit. Subdivisions with the potential for BMP retrofit in the opinion of the CONSULTANT will be added to the base map for consideration in the Phase III alternatives analysis. For budgeting purposes, the CONSULTANT will field investigated a maximum of 25 subdivisions to identify the potential for water quality retrofit.

3. The CONSULTANT will map areas served by septic tanks based upon published map data or map information provided by the SJRWMD and PARTICIPANTS.

4. The CONSULTANT will recommend event mean concentrations (EMC) values to the SJRWMD to be used for this effort based upon the CONSULTANT's Southeast U.S. EMC database.

5. The CONSULTANT will set up and apply the WMM using nonpoint source loading factors for model input such as runoff coefficients and event mean concentrations (EMCs), based on available data. The CONSULTANT will use WMM results to conceptually evaluate relative annual and seasonal loads (wet and dry) stormwater pollutant loadings generated from the Little Wekiva River Basin for the 12 USEPA indicator pollutants (BOD5, COD, TSS, TDS, TP, DP, TKN, TN (NO2+NO3), Pb, Cu, Zn, and Cd) at up to 10 locations as mutually agreed upon by the CONSULTANT and the SJRWMD. The CONSULTANT will not include point sources (i.e., treatment plants, septic tanks, baseflow, etc.) in

the analysis. Pollutant load estimates from incorporated and unincorporated areas of Orange and Seminole Counties will be distinguished. Tables and bar charts will be used to present the results.

If at the end of the analysis, the SJRWMD would like to pursue a second phase of water quality modeling at a higher level of detail (e.g., EPA Basins/HSPF), the CONSULTANT will prepare a separate scope of services for this effort.

Part II, Task 5 Report Development

Part II, Subtask 5.1 Report - Upon the completion of Part II, the CONSULTANT shall prepare and submit ten (10) copies of the Draft Existing Conditions Analysis Report for review and approval. Written comments provided by the SJRWMD on the draft report will be addressed in a manner mutually agreed upon by the SJRWMD and the CONSULTANT. The SJRWMD will be responsible for compiling comments the PARTICIPANTS into a single document. Upon final approval, the CONSULTANT shall submit ten (10) copies of the final report, one (1) camera-ready original copy, and all digital document files (Microsoft OFFICE PRO format) on a CD.

Part II, Task 6 Meetings and Coordination

Part II, Subtask 6.1 Meetings and Coordination - The CONSULTANT will attend a maximum of ten (10) monthly meetings with the SJRWMD to discuss the status and/or problems during this work authorization. The SJRWMD will be responsible for meeting coordination with the PARTICIPANTS. The CONSULTANT will provide summary meeting minutes for the SJRWMD's review

Part II, Task 7 Additional Model Runs

Part II, Subtask 7.1 Additional Model Runs – At the request of the SJRWMD, the CONSULTANT will develop a cost estimate for simulating additional design storm events based upon an agreed set of design standards (i.e., rainfall distribution, volume, duration). Once the CONSULTANT received written approval from the SJRWMD, the CONSULTANT will simulate the additional design storm events. The results will be tabulated by the CONSULTANT and presented in a brief technical memorandum that will be included as an appendix to the Part II Report.

PART II DELIVERABLES

1. The CONSULTANT shall prepare floodplain maps for the existing condition stormwater model for the primary stormwater management system for the 100-year storm event using ArcView Version 3.2a.

2. The CONSULTANT shall prepare and submit ten (10) copies of the Draft and Final Existing Conditions Analysis Report.

3. The CONSULTANT shall submit ten (10) CDs each containing a copy of the ICPR modeling input and output data in digital format.

PART III: ALTERNATIVE ANALYSIS OF PROBLEM AREAS

Upon completion of Part II and written authorization by the SJRWMD, the CONSULTANT will develop and negotiate a revised scope and budget to complete Part III of this project based upon the findings of Part II. Upon written approval by the SJRWMD, the CONSULTANT shall commence with Part III.

Part III, Task 1 Alternatives

Part III, Subtask 1.1 Alternatives Evaluation - The CONSULTANT will develop up to three (3) basin-wide alternative stormwater management plans for the problems identified under Part II. Alternatives will be directed toward solving serious flooding problems that also aid/relieve some nuisance problems in order to meet the assigned LOS. Solving serious problems for the purpose of this scope means reducing the flooding to achieve the appropriate LOS criteria and will use non-structural and structural improvements. If total maximum daily loads are established or estimated by the Florida Department of Environmental Protection prior to this task being initiated, then alternative improvements may also be directed towards pollutant load reduction goals (PLRG) established through the TMDL program. Alternative solutions will be based upon future land use conditions to plan for ultimate facility needs within the basin. The alternative analysis will also consider the findings of the wetlands analysis completed under Part I, Task 3. Alternatives will be shown in plan view on the project base map showing the general location of the proposed improvement. Conceptual information on alternative improvement dimensions, elevations, and costs will be summarized in the Alternatives Section of the Report using tables to the extent practicable.

For each alternative, the CONSULTANT will simulate the mean annual, 10-, 25-, 50-, and 100-year/24-hour design storm events using the ICPR Version 2.20 model of the Little Wekiva River Basin under future (build out) land use and proposed hydraulic conditions (alternative) and normal antecedent moisture conditions. The CONSULTANT will simulate these five storm events using the SJRWMD rainfall distribution unless directed otherwise by the SJRWMD.
The CONSULTANT will tabulate the resulting peak stages and peak flows for the modeled system. For the recommended alternative, the CONSULTANT will simulate the mean annual, 10-, 25-, 50-, and 100-year/24-hour design storm events using the Orange County rainfall distribution, the 10-year/3-hour design storm event provided by the City of Altamonte Springs, and the 25-year/72-hour design storm event using the SJRWMD rainfall distribution. These results will be tabulated. A total of 22 design storm events are included in this task.

Part III, Subtask 1.2 Alternatives Ranking - Based upon the findings of Part III, Subtask 1.1, the CONSULTANT shall review the recommended improvements with the SJRWMD and document comments regarding permittability of the recommended solutions. The CONSULTANT will prepare a prioritized and phased improvement list using a ranking matrix mutually agreed to by the SJRWMD with input from both

Orange and Seminole Counties. The alternative ranking matrix will include the following considerations:

a. Estimated costs (including land acquisition and capital cost);
b. Potential wetland impacts;
c. Expected relative water quality benefits (surface and ground water);
d. Implementation considerations (practicality);
e. Social acceptability;
f. Operation and maintenance requirements;
g. Permitting feasibility; and,
h. Anticipated flood benefits (e.g., reductions in flood stages).

The ranking matrix will be used to recommend a final basin plan.

Part III, Subtask 1.3 Vegetation Management Plan Review – Based upon the information provided by the Vegetation Subcommittee for the Little Wekiva River Basin, the CONSULTANT will provide recommendations on an overall vegetation management plan and identify areas where additional information may be needed. This may include information on potential funding sources, public access and use. Collection and analysis of information beyond that provided by the Vegetation Subcommittee is not included in this scope of work.

Part III, Task 2 Meetings

Part III, Subtask 2.1 Public Meetings - The CONSULTANT will conduct two (2) public meetings to obtain input from the attending public on the recommended WMP. The COUSULTANT will prepare the SJRWMD approved handout material for the meetings. The SJRWMD will be responsible for the scheduling and advertising of each meeting. The CONSULTANT will provide the SJRWMD written summary minutes of the meetings.

Part III, Task 3 Reporting

Part III, Subtask 3.1 Draft and Final Reports - The CONSULTANT will prepare and submit ten (10) Draft Final Report that will include the results of Part I, Part II, and Part III. Written comments provided by the SJRWMD will be addressed in a manner mutually agreed upon by the SJRWMD and the CONSULTANT. The SJRWMD will be responsible for compiling comments from Orange and Seminole County staff. Upon approval of the Draft report by the SJRWMD, the CONSULTANT shall submit ten (10) copies of the Final Report, which must include one (1) photo reproducible original, and all digital document files (MS OFFICE PRO format, etc.) on a CD.

Part III, Subtask 3.2 Public Information Pamphlet - The CONSULTANT will condense the information in the Final Report including the purpose, conclusions, and recommendations into a brief public information pamphlet. The CONSULTANT shall furnish thirty (30) copies of the pamphlet to the SJRWMD and digital document files (MS OFFICE PRO format, etc.) on a CD.

Part III, Task 4 Mapping

Part III, Subtask 4.1 Final Base Maps - The CONSULTANT will use the Part II mapping of the basin to prepare Part III mapping of the basin. These revised maps will reflect existing and proposed conditions (i.e. SJRWMD endorsed WMP). The CONSULTANT will provide the SJRWMD with three (3) sets of project maps in both digital and hardcopy format for distribution to Orange County and Seminole County. Hardcopy maps will be at a scale that can fit onto a maximum of five (5) 24-inch by 36-inch drawings.

Part III, Task 5 Coordination

Part III, Subtask 5.1 Meetings and Coordination - The CONSULTANT will attend up to six (6) monthly meetings with the SJRWMD to discuss the status and/or problems during this work authorization. The CONSULTANT will provide summary meeting minutes for the SJRWMD's review.

Part III, Subtask 6.1 Additional Model Runs – At the request of the SJRWMD, the CONSULTANT will develop a cost estimate for simulating additional design storm events based upon an agreed set of design standards (i.e., rainfall distribution, volume, duration). Once the CONSULTANT received written approval from the SJRWMD, the CONSULTANT will simulate the additional design storm events. The results will be tabulated by the CONSULTANT and presented in a brief technical memorandum that will be included as an appendix to the Part III Report.

PART III - DELIVERABLES

1. The CONSULTANT will prepare and submit ten (10) Draft Final Reports.

2. The CONSULTANT will submit ten (10) copies of the Final Report that must include one (1) photo reproducible original.

3. The CONSULTANT will submit the FINAL mapping of the basin. The FINAL maps will consist of one (1) set for existing conditions and one (1) set for proposed conditions (i.e. SJRWMD endorsed WMP).

4. The CONSULTANT will furnish thirty (30) copies of the pamphlet to the SJRWMD and digital document files (MS OFFICE PRO format, etc.) on a CD.

5. The CONSULTANT will submit ICPR computer input and output data (hard copy and digital files) on a CD.

The estimated fees for completion of the Little Wekiva Basin WMP are presented in **Table 1**. It should be noted that the required services and associated fees for Part II and III will be negotiated based upon the findings of Part I as directed by the SJRWMD.